

CLAIMS

1 A corrugated tube including a tube body of a tubular shape having
larger-diameter portions and smaller-diameter portions which are arranged
5 alternately along the same axis, and a slit formed along a generating line of the
tube body, characterized in that:

 a communication hole, communicating an inside and outside of the tube
body with each other, is formed in a peripheral surface of the tube body, and the
communicating hole is formed by cutting part of the larger-diameter portion off
10 over a predetermined length in a circumferential direction.

2 The corrugated tube according to claim 1, characterized in that the
communication hole is formed at least in a portion of the peripheral surface of
the tube body which is remotest from the slit.

15 3 The corrugated tube according to claim 1 or claim 2, characterized in
that a plurality of the communication holes are provided, and the
communication holes are arranged in a staggered manner in the peripheral
surface of the tube body when the peripheral surface is shown in a developed
20 view.

4 The corrugated tube according to any one of claims 1 to 3,
characterized in that the communication hole is formed to include a part of a
vertical wall portion interconnecting the larger-diameter portion and the
25 smaller-diameter portion.

5 The corrugated tube according to claim 4, characterized in that the communication hole is formed to include a part of each of the vertical wall portions each formed between the larger-diameter portion and a respective one of the smaller-diameter portions disposed respectively on opposite sides of the larger-diameter portion in the circumferential direction.

6 An apparatus for perforating a corrugated tube including a tube body of a tubular shape having larger-diameter portions and smaller-diameter portions which are arranged alternately along the same axis, and a slit formed along a generating line of the tube body; characterized in that the apparatus comprises:

10 a slit former forming the slit in the tube body as the tube body of the corrugated tube is moved along the generating line of the tube body;

15 a tube guide which is provided at a downstream side of the slit former in a moving direction of the tube body of the corrugated tube, and is fitted into the tube body and the slit to support the tube body in such a manner that the tube body is movable in a direction along the generating line;

20 at least one pair of tube body feeders which are provided at opposite sides of the tube guide in the moving direction of the tube body, and abut against the tube body, supported on the tube guide, from the opposite sides of the tube body in the moving direction, and rotate, thereby moving the tube body along the tube guide; and

25 a perforator forming a plurality of communication holes in predetermined portions of a peripheral surface of the tube body which is moved along the tube guide by the tube body feeders.

7 The corrugated tube perforating apparatus according to claim 6,
characterized in that the pair of tube body feeders are provided at each of an
upstream side and a downstream side of the perforator in the moving direction
5 of the tube body such that the two pairs of tube body feeders are provided in all.

8 The corrugated tube perforating apparatus according to claim 6 or claim
7, characterized in that retainers are provided at the vicinity of the perforator,
respectively, and the retainers are brought into abutting engagement with the
10 peripheral surface of the tube body to retain the tube body before perforating
operation of the perforator.

9 The corrugated tube perforating apparatus according to claim 8,
characterized in that the perforator and the retainers are driven by a cam
15 mechanism.

10 The corrugated tube perforating apparatus according to any one of
claims 6 to 9, characterized in that the perforators are provided in opposed
relation to three portions of the peripheral surface of the tube body of the
20 corrugated tube spaced almost 90 degrees from one another in a
circumferential direction, and the three portions do not include a portion at
which the slit is formed, and the perforators are arranged in offset relation in the
moving direction of the tube body.

25 11 A method of perforating a corrugated tube including a tube body of a

tubular shape having larger-diameter portions and smaller-diameter portions which are arranged alternately along the same axis, and a slit formed along a generating line of the tube body; characterized in that the method comprises:

forming the slit in the tube body by a slit former as the tube body of the
5 corrugated tube is moved along the generating line of the tube body;

fitting a tube guide into the tube body and the slit to support the tube body in such a manner that the tube body is movable in a direction along the generating line;

moving the tube body along the tube guide by at least one pair of tube
10 body feeders provided at opposite sides of the tube body in a moving direction of the tube body; and

forming a plurality of communication holes in predetermined portions of a peripheral surface of the tube body by a perforator which is movable in a direction perpendicular to the moving direction of the tube body.

15

12 The corrugated tube perforating method according to claim 11, characterized in that the tube body feeders abut against the tube body at two regions disposed at an upstream side and a downstream side of the perforator in the moving direction of the tube body, thereby moving the tube body.

20